

REMARKS

Applicant believes no fee is due with this response. However, if a fee is due, please charge our Deposit Account No. 50-0591, under Order No. 17128/002001 from which the undersigned is authorized to draw. Please reconsider the application in view of the above amendments and the following remarks. Applicant thanks the Examiner for carefully considering this application.

Amendments to the claims were made for purposes of clarifying the claims as suggested by the Examiner. Other amendments were made to correct minor typographical errors and placement of element numbers in the text of the claims. The amendments were not made for purposes of narrowing the scope of the claims and were not made for purposes of distinguishing over any cited prior art; rather, the claims as amended for clarification only and as clarified are deemed to retain the scope originally presented in the application.

The rejections of claims 1-4 and 6 under 35 U.S.C.102(b) as being anticipated by Knuth (5,242,279) are respectfully traversed. Claim 1 recites the elements as follows:

An infusion pump comprising :

a pump hose (13) having two transition pieces (15, 20) at opposite ends, respectively, of the pump hose;

a housing (10) accommodating a pump finger mechanism (12) and having two holders (16, 21) for fastening the two transition pieces (15, 20), a door (24) provided at the housing (10) and forming a counter bearing for supporting the pump hose (13); and

wherein at least one of the holders (16) mates with an associated transition piece (15) via at least a combination of an oblique pin (17) and an oblique hole (18) to be slipped onto the oblique pin, the pin (17) and the hole (18) being inclined the same with respect to a longitudinal axis of the placed pump hose (13).

Knuth does not teach all of the elements claimed in claim 1 and in claims 2-4 and 6 depending from claim 1. For example, and contrary to the recitation in the office action, Knuth '279 does not teach, disclose, or suggest an oblique hole for receiving an oblique pin. While Knuth '279 might show an oblique pin 35, it is clear from the figures (see Figs. 2 and 5) that the holes 24 (disclosed at column 4, lines 63-68 and shown in Figs 1, 2, and 5) are not oblique and do not comprise "an oblique hole" as claimed in the combination of applicants' claim 1. It is further clear, with reference to Knuth '279 Fig. 5, that the pins 35 and the holes 24 are not "inclined the same with respect to a longitudinal axis of the placed pump hose" as claimed in the combination of applicants' claim 1. Nowhere in the drawing or the text portion of the specification in Knuth '279 are oblique holes disclosed, taught, or suggested. Moreover, the benefits as disclosed by applicants of the oblique hole for engagement on an oblique pin in the claimed combination are not taught, disclosed, or suggested by Knuth '279. For example, oblique holes make insertion of the pump hose the wrong way around with the back face facing forward (turned 180 degrees) immediately apparent, a bulge is caused in the hose and closing the door of the pump is impeded or prevented. Thus, orderly operation of the pump is made impossible when the hose is placed improperly. Improper placement of the hose is reduced. The described benefits would not be obtained by oblique pins alone. The holes 24 of Knuth '279 are perpendicular to the axis of the hose and would allow the transition piece to be engaged onto the pin in either direction.

The rejection of claim 5 under 35 U.S.C. 103(a) as being unpatentable over Knuth '279 (previously mentioned) and in view of Archibald (4,391,600) is traversed for all the reasons set forth above. Knuth '279 does not teach all of the features of claim 5 and further Archibald '600 does not disclose, teach or suggest the claimed limitations missing from Knuth '279.

The rejection of claim 7 under 35 U.S.C. 103(a) as being unpatentable over Knuth '279 (previously mentioned) and in view of Menheere (5,182,954) is traversed for all the reasons set

forth above with respect to Knuth '279. Knuth '279 does not teach all of the features of claim 7 and further Menheere '954 does not disclose, teach or suggest the claimed limitations missing from Knuth '279. Moreover, Menheere '954 is directed to alignment of multiple soil samples and is not considered analogous art and is not art to which those of ordinary skill in the relevant infusion pumping art would look for a solution to the problems identified by applicants.

The rejections of claims 8-9 under 35 U.S.C. 103(a) as being unpatentable over Knuth '279 (previously mentioned), in view of Rix (0,255,335) with respect to claims 1-4 and 6, in further view of Archibald '600 (previously mentioned) with respect to claim 5 and in view of Menheere '954 (previously mentioned) with respect to claim 7 are traversed for all the reasons set forth above with respect to Knuth '279, Archibald '600, and Menheere '954. Knuth '279 does not teach all of the features of claims 8-9. None of Rix '335, Archibald '600, or Menheere '954 discloses, teaches, or suggests the claim limitations missing from Knuth '279. Menheere is further considered not analogous art. Rix '335 does not provide the elements missing from Archibald and Menheere '954. Further, for example, Rix '335 does not provide a length of hose (14) with the two transition pieces (15 and 20) at opposite ends, wherein at least one associated transition piece (15) of the two transition pieces (15 and 20) has two half shells (36, 37) connected by a hinge portion (31), a tubular pin (30) projecting from the hinge portion (31), and the half shells (36, 37) having flanges (33, 34) adapted to be abutted against and connected with each other, the flanges clampingly enclosing the end of the length (14) of hose slipped on the tubular pin (30). There is no suggestion in the cited art for combining Rix '335 with any of the cited references to obtain the combination claimed by applicants. For example, in Rix '335 the threaded flange J cannot be considered to be a hinge portion (31) as recited in the office action. The flange J of Rix '335 is provided with a male screw-thread (lines 37-38 and Fig. 4) so that it functions to engage with the corresponding internal threads of band K (lines 38--40 see Figs 1 and 3). Even if by hindsight one were to construe flange J as a "hinge," doing this would mean that flange J must pivot or flex, and because flange J is one piece it would need to flex in order to act as a hinge. Flexing flange J would result in distortion of the male screw-threads that would interfere with or prevent the intended threaded mating engagement with the female threads of band K. Thus, the function of flange J in Rix '335 is destroyed if the threaded flange J is construed to be a hinge. To conjure and convert flange J into a hinge would not have been obvious to one of ordinary skill in the art at the time of the invention. This is particularly true

without the benefit of applicants' disclosure, because nothing in Rix '335 indicates flange J is a hinge or acts as a hinge.

As a further example, if the fastening lugs F of Rix '335 are considered analogous to applicants' flanges (33, 34), the lugs F are spaced apart and are constructed so that they would not be abutting. Upon a fair reading of Rix '335 without the benefit of hindsight one concludes that Rix '335 used the terms "about half-way around" (not "one half" as recited in the office action) to describe extension bands E and to indicate less than half. The concept in Rix '335 is to permit tightening and squeezing on the hose by the extension bands E (or "sectional ring E" as element E is described by Rix '335 in the claim) upon tightening the bolts D with nuts acting through spaced apart lugs F. Moreover, the "mathematical" contact at the ends of sectional ring E as hypothetically proposed in the office action would reduce or prevent the intended hose squeezing function of the bolts acting on spaced apart flanges F. For any one of these reasons, for all of these reasons, or for other reasons, combining Rix '335 with other art as indicated in the office action is deemed to be improper and not an obvious combination.

As indicated above, the office action has not shown prior art having the claimed structure formed integrally, formed of plastic, or otherwise. Moreover, it is deemed that applicants have come forward to show embodiments with useful and unobvious differences in the first instance. For example, Rix '335 requires multiple pieces, internal and external threads and nuts and bolts to make a transition device. One of applicants' embodiments enables through a single integral piece construction in part because of the hinged construction permitting abutting flanges and in combination with the other claimed features. One of applicants' embodiments enables convenient welding of abutting flanges (made possible by the unique selection of plastic material in combination with the unique structure combination as claimed). It is not proper to dismiss this as obvious because it provides advantages for manufacturing purposes not taught or suggested by any of the art cited. The integral structure and combination of plastic material that might be injection moldable or weldable material provides a distinctly different structure from metal bolts in lugs as in Rix '335. Further, as indicated above the other four separate references cited for making the claimed combinations are also deficient so that any such combinations would not truly result in the claimed invention and in any event any such combination would not have been obvious at the time of the invention.

The rejection of claims 10-20 as unpatentable under 35 U.S.C. 103(b) in view of Rix '335 is traversed. Rix '335 does not disclose all the features of claim 10 or of claims 11-20 depending from claim 10. The missing features would not have been obvious to one of ordinary skill in the art at the time of the invention. For example in Rix '335 the threaded flange J cannot be considered to be a hinge portion (31) as recited in the office action. The flange J of Rix '335 is provided with a male screw-thread (lines 37-38 and Fig. 4) so that it functions to engage with the corresponding internal threads of band K (lines 38--40 see Figs 1 and 3). Even if by hindsight one were to construe flange J as a hinge, to do so would result in distortion of the male screw-threads, preventing the intended mating engagement with band K and thus the destruction of the function of flange J altogether. To conjure and reconfigure flange J as a hinge is not properly done by reference to applicants' claimed invention and such a reconfiguration would not have been obvious in view of any suggestion in Rix '335 or in the prior art at the time of the invention.

As a further example, if the fastening lugs F of Rix '335 are considered analogous to applicants' flanges (33, 34), the lugs F are spaced apart and are constructed so that they would not be abutting. Upon a fair reading of Rix '335 without the benefit of hindsight one concludes that Rix '335 used the terms "about half-way around" (not "one half" as recited in the office action) to describe extension bands E and to indicate less than half. The concept in Rix '335 is to permit tightening and squeezing on the hose by the extension bands E (or "sectional ring E" as element E is described by Rix '335 in the claim) upon tightening the bolts D with nuts acting through spaced apart lugs F. Moreover, the "mathematical" contact at the ends of sectional ring E as hypothetically proposed in the office action would reduce or prevent the intended hose squeezing function of the bolts D acting on spaced apart flanges F. For any one of these reasons, for all of these reasons, or for other reasons, combining Rix '335 with other art as indicated in the office action is deemed to be improper and not an obvious combination.

With respect to claims 14-15, and 17, as indicated above the office action has not shown prior art having the claimed structure formed integrally, formed of plastic, or otherwise. Moreover, it is deemed that applicants have come forward to show embodiments with useful and unobvious differences in the first instance. For example, Rix '335 requires multiple pieces,

internal and external threads and nuts and bolts to make a transition device. One of applicants' embodiments is to a single integral piece construction. This is unique and possible in part because of the hinged construction permitting abutting flanges and in combination with the other claimed features. One of applicants' embodiments provides convenient ultrasonic welding of abutting flanges (made possible by the unique selection of plastic material in a unique combination with other structural features as claimed). It is not proper to dismiss this as obvious because it provides advantages for manufacturing purposes not taught or suggested by any of the art cited. The integral structure and combination of plastic material that might be injection moldable or weldable material provides a distinctly different structure from metal bolts in lugs as in Rix '335. Further, as indicated above the other four separate references cited for making the claimed combinations are also deficient so that any such combinations would not truly result in the claimed invention and in any event any such combination would not have been obvious at the time of the invention.

The office action has shown no suggestion in the cited prior art of any combination or use of the Rix '335 hose-coupling with the pump disclosed in Knuth '279 that would result in applicants' claimed invention.

It is respectfully submitted that combination structure of claim 16 is not obvious for all the reasons set forth with respect to claims 10, 11, 12, 13, and 14 above. Further, the notion that an interior tube must inherently be harder than an exterior tube in order for the two tubes to slip together is an incorrect and unsupported assertion. Rix '335 clearly states that it is the exterior diameter of the tube B that allows it to be inserted into the end of the hose A (see lines 24-26, and Fig. 5 showing clearance between tube B and Hose A.) Relative difference in hardness is not required or inherent for a smaller tube B to enter a larger hose A. In one of applicants' embodiments as claimed it is beneficial and unobvious for the construction to have the relative hardnesses in the combination construction as claimed. By way of example, for illustrative purposes only and without limitation on the scope of the claims, welding the harder plastic material uniquely helps provide an appropriate amount of sealing compression on a softer rubber or silicone tube used in the peristaltic pump. Moreover, it is respectfully submitted that unique and unobvious choices made for purposes of convenient manufacturing can be the subject of

invention where that same choices are not shown to exist or to be suggested as obvious in the relevant prior art.

Applicant believes this reply is fully responsive to all outstanding issues and places this application in condition for allowance. If this belief is incorrect, or other issues arise, the Examiner is encouraged to contact the undersigned or his associates at the telephone number listed below. Please apply any charges not covered, or any credits, to Deposit Account 50-0591 (Reference Number 17128/002001).

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Respectfully submitted,

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